Introduction and Objectives
Demonstrate the technical feasibility of DI-CNG injector manufacturing at pre-industrial prototype level and evaluate environmental performances of DI-CNG technology via Life Cycle Assessment (LCA) study.

Direct-Injection of Compressed Natural Gas (DI-CNG) technology

Engine performance boost

Monovalent DI-CNG vehicle

End consumer

+ Driving comfort and power
+ Increased efficiency and reduced gas consumption
+ Low operation costs and taxes
+ High range (>600 km), fast fueling
+ Zero particles, ultra low emissions
- Limited vehicle fleet
- Insufficient fueling infrastructure across Europe

Environmental Impact Evaluation of DI-CNG technology

Preliminary LCA results show that Direct Injection of Natural Gas (DI-CNG) can decrease significantly the environmental impact of passenger cars during their operation in particular when using renewable natural gas (RNG). Moreover Natural Gas Vehicles (NGVs) do not emit particles and display ultra low NOx emissions. Thus combustion engines operating with natural gas could become complementary to electrification. Direct injection enables further improvements of efficiency. While downsizing of engines becomes feasible, same levels of performance and driving comfort can be reached than with modern Gasoline Direct Injection (GDI) vehicles. Further LCA results will compare the manufacturing of injectors and of the modified engine components for gasoline direct injection and monovalent DI-CNG vehicles.

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